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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,598	08/24/2006	Bart Maria Jozef Haex	50704/002001	8758
21559	7590	03/08/2010	EXAMINER	
CLARK & ELBING LLP 101 FEDERAL STREET BOSTON, MA 02110			KIM, CHONG R	
			ART UNIT	PAPER NUMBER
			2624	
			NOTIFICATION DATE	DELIVERY MODE
			03/08/2010	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentadministrator@clarkelbing.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/590,598	<b>Applicant(s)</b> HAEX ET AL.	
	<b>Examiner</b> CHARLES KIM	<b>Art Unit</b> 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 28-33, 37-51 and 55-69 is/are pending in the application.
- 4a) Of the above claim(s) 28-33 and 37-42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 43-51 and 55-69 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/24/06</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Restriction Requirement***

1. Applicant's election without traverse of Group II, claims 43-51 and 55-69, as amended, in the reply filed on February 16, 2010 is acknowledged. Claims 28-33 and 37-42 are withdrawn from further consideration by the Examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claim(s) 43-51, 64-66 is/are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Federal Circuit precedent requires that a statutory "process" under 35 U.S.C. 101 must "(1) be tied to a particular machine or apparatus, or (2) transform a particular article into a different state or thing."<sup>1</sup> This is called the "machine-or-transformation" test. While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform a particular article nor are positively tied to a particular machine or apparatus that accomplishes the claimed method steps. Thus, the claim(s) do not embody statutory subject matter because they fail to satisfy the machine-or-transformation test.

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<sup>1</sup> *In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008).

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Although the claims recite a “computer based method,” this phrase is recited in the preamble and thus fails to impose meaningful limits on the claim’s scope necessary to render the claim statutory.<sup>2</sup> To embody statutory subject matter, the computer should be recited in association with a step or steps meaningful to the claimed invention.

3. Claims 55-63, 67-69 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims to data structures, such as a computer program product, that are not embodied in a computer-readable medium are considered functional descriptive material per se and are therefore, non-statutory. A statutory product comprising functional descriptive material must include a positive recitation of a computer readable medium -- MPEP 2106.01.

4. Claims 57, 60, 63, and 69 are further considered to be non-statutory because the claims appear to encompass transitory subject matter (e.g., transmission of a computer program product over a network).

“A transitory, propagating signal ... is not a ‘process, machine, manufacture, or composition of matter.’ Those four categories define the explicit scope and reach of subject matter patentable under 35 U.S.C. § 101; thus, such a signal cannot be patentable subject matter.” *In re Nuijten*, 84 USPQ2d 1495, 1503 (Fed. Cir. 2007). As such, claims 57, 60, 63, and 69 are not considered to embody statutory subject matter. The Examiner suggests canceling these claims.

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<sup>2</sup> *Id.* at 961 (holding that “the use of a specific machine...must impose meaningful limits on the claim’s scope to impart patent-eligibility.”).

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 47-51, 58-63 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Referring to claim 47, the specification is non-enabling with regards to at least the limitation "determining from said time-dependent anatomical surface information a set of boundary conditions," as recited in lines 5-6. In particular, the specification does not sufficiently explain what the *set of boundary conditions* are. As such, the specification fails to enable one of ordinary skill to determine the set of boundary conditions from the time-dependent anatomical surface information, as recited in claim 47. It follows that the specification also fails to enable one of ordinary skill to fit a time-dependent three-dimensional bio-mechanical model of a musculo-skeletal structure according to the set of boundary conditions, as recited in claim 47.

If Applicants disagree, they are requested to point out the exact location in the specification that provides enabling support for these claimed features.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. Claims 57, 60, 63, and 69 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Referring to claims 57, 60, 63 and 69, it is unclear what statutory category the claim falls under, particularly, whether the claim is a product or a process. Moreover, it is unclear where the preamble ends and the body of the claim begins.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 43-44, 46, 64-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Drerup et al., "Back shape measurement using video rasterstereography and three-dimensional reconstruction of spinal shape" ("Drerup") and Higaki, U.S. Patent Application Publication No. 2002/0031265 ("Higaki").

Referring to claim 43, Drerup discloses a computer based method for detecting and/or extracting from a series of time-dependent images (video images) of a surface of body parts of a creature anatomical features on surface measurements, said method comprising using a feature analysis to determine anatomical landmarks and shapes [p. 29, left column, p. 31, right column. *Note that anatomical landmarks are determined using surface shape analysis.*], wherein said feature analysis comprises fulfilling predetermined conditions describing topographic

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characteristics of the surface of the body parts of the creature [*pp. 30-32. Note that topographic characteristics of the surface of the body parts, such as surface curvatures, are described.*] and fulfilling predetermined conditions describing topographic, topologic and/or volumetric characteristics of the interior of the body parts of the creature [*pp. 30-32. Note that the anatomical landmarks are used to reference the underlying skeletal structures.*].

Drerup does not expressly disclose that the feature analysis comprises invariant feature analysis. However, this feature was exceedingly well known in the art. For example, Higaki discloses invariant feature analysis (active contour analysis) to determine anatomical features and shapes [pars. 4-5, 54-61, 95].

Drerup and Kervrann are combinable because they are both concerned with analyzing shapes of anatomical features. Higaki's invariant feature analysis was a well known technique for analyzing features (contours) accurately and quickly (Higaki, abstract). As such, adding Higaki's well known invariant feature analysis to Drerup's method would have yielded the predictable and desirable benefits of determining the anatomical landmarks and shapes more accurately and quickly. Accordingly, one of ordinary skill and creativity, starting with Drerup would have looked to Higaki to incorporate Higaki's teachings to take advantage of these predictable and desirable benefits. Therefore, it would have been obvious to combine Drerup and Higaki to obtain the invention as specified in claim 43.

Referring to claim 44, Drerup further discloses that said topographic characteristics of the surface of the body parts of the creature are at least one of curvature and symmetry of surface parts of the body parts of the creature [*pp. 30-32. Note that topographic characteristics of the surface of the body parts, such as surface curvatures, are described.*] and wherein said

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topographic, topologic and/or volumetric characteristics of the interior of the body parts of a creature are at least one of the relative position, bending, torsion, equidistance and dynamical properties of interior parts of the body parts of the creature [pp. 30-32. *Note that dynamical properties, such as vertebral rotation, of the interior parts (vertebrae) are determined.*].

Referring to claim 46, Drerup further discloses that said predetermined conditions describing topographic characteristics of the surface of the body parts of the creature and said predetermined conditions describing topographic, topologic and volumetric characteristics of the interior of the body parts of the creature are determined by biomechanical constraints (i.e., vertebral rotation) [pp. 29-32].

Referring to claims 64 and 66, Higaki further discloses that the invariant feature analysis comprises active contour/shape modeling [pars. 54-61].

Referring to claim 65, Higaki further discloses that the active contour modeling is based on optimizing a finite number of active contour points, all said active contour points substantially being at an equal distance [pars. 54-61. Note that the contour model is generated from “points arranged on a contour in a manner such that each side...is equally divided by the positions of the points.”].

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Kim whose telephone number is 571-272-7421. The examiner can normally be reached on Mon thru Thurs 8:30am to 6pm and alternating Fri 9:30am to 6pm.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on 571-272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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